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MAIL STOP APPEAL BRIEF-PATENT
PATENT
0504-1088

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of

Appeal No. _____

Frederic LOUART et al.

Conf. 4810

Serial No. 09/890,530

GROUP 1772

Filed August 1, 2001

Examiner Jane J. Rhee

THERMAL PROTECTION SHEATH AND ITS FABRICATION METHOD

APPEAL BRIEF

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September 27, 2004

1. Real Party in Interest

The real party in interest in this appeal is the current assignee, Federal Mogul Systems Protection Group of Crepy-en-Valois, France.

2. Related Appeals and Interferences

None.

3. Status of Claims

Claims 47-49 remain in the application and are the subject of the present appeal.

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4. Status of Amendments

An amendment was filed on June 28, 2004 following the Final rejection of January 27, 2004. The Advisory Action of August 27, 2004 states that, for the purposes of Appeal, the amendment filed on June 28, 2004 will be entered. Therefore, the claims on appeal are as set forth in the Appendix.

5. Summary of Invention

The invention is a thermal protection sheath that may be used to insulate a fluid pipe (page 1, lines 5-9).

The sheath includes a substrate that has an exterior surface with a plurality of recesses therein (page 2, lines 33-35). The substrate may be a knitted substrate 10 such as shown in Figures 1, 2A-2B that is formed from threads 13 that form openings 12 (page 5, lines 21-31). The substrate is longitudinally and radially elastically deformable between a relaxed configuration and an expanded configuration in which a length or a radius of the substrate is larger than in the relaxed configuration (page 5, lines 15-20 and Figure 1). A further embodiment provides that the substrate is a corrugated tube 14 (Figures 4-5) that may be split longitudinally (page 8, lines 6-7).

The sheath also includes a reflective foil 20 fixed to the substrate 10 (page 5, lines 32-35 and Figures 1, 2B and 3). The foil 20 contacts the exterior surface of the substrate 10 only intermittently so as to form air pockets (page 2, lines 29-31 and page 6, lines 15-21).

The foil 20 is arranged on the substrate 10 to have a plurality of indentations (shown in Figure 2B at 12) that correspond to the plurality of recesses in the substrate when the substrate 10 is in the relaxed (unexpanded) configuration (page 2, lines 33-35 and page 5, line 33 through page 6, line 7).

The indentations in the foil 20 disappear when the substrate 10 is elastically deformed from the relaxed configuration to the expanded configuration (Figure 8 shows the process of manufacturing the sheath in which the foil 20 - without indentations - is applied to the substrate 10 when the substrate is in the expanded configuration, as explained at page 8, lines 8-23.)

6. Issues

Whether the subject matter of independent claim 47 and dependent claim 49 would have been obvious under 35 U.S.C. §103 to one of skill in the art at the time of the present invention over WEIL 5,617,900 and whether the subject matter of dependent claim 48 would have been obvious under 35 U.S.C. §103 to one of skill in the art at the time of the present invention over WEIL in view of ROCKNEY 5,660,899.

7. Grouping of Claims

The claims stand or fall together.

8. Argument

The claims include a tubular substrate that is elastically deformable between a relaxed configuration and an expanded configuration in which a length or radius of the substrate is larger than in the relaxed configuration. The exterior surface of the substrate has recesses therein. Note that the substrate expands from the relaxed configuration. The claims also include a foil that is fixed to the substrate and has plural indentations that correspond to the recesses when the substrate is in the relaxed configuration. The indentations disappear when the substrate is elastically deformed from the relaxed configuration to the expanded configuration.

The Examiner states (January 27, 2004 Official Action, page 5) that since WEIL discloses a sheath that comprises flexible and resilient materials, the sheath can be expanded from its relaxed position. This is not correct. The relaxed position in WEIL is one in which the sheath is already expanded. It cannot be expanded any farther. Further expansion is blocked by the foil 32 that forms the heat retarding layer 30. The foil 32 is not expandable from the relaxed configuration shown in Figure 3 of WEIL. The foil 32 may be aluminum which does not expand. Consequently, even if the inner tubular member 20 could expand farther, the presence of the foil 32 surrounding the member 20 prevents the further expansion of the sheath.

The Examiner also states that the foil comprises indentations that will not revert back to a smooth state in the expanded state, and that in view of this the sheath can be expanded further from its expanded state. This statement is contradictory. If the indentations will not revert back to a smooth state, how can the sheath expand farther? Presumably, the Examiner means that the indentations will revert back to a smooth state if the sheath is somehow forcibly expanded

enough to cause the indentations to disappear. However, if the sheath can be expanded further it would then expand back to its “expanded state,” in which event the foil was not in the expanded state before the further expansion.

Indeed, WEIL discloses a sheath that is opposite the sheath of claims 47-49. As explained at column 2, lines 61-65 and column 3, lines 28-36, WEIL discloses a tubular substrate 20 (WEIL erroneously refers to this as element 12 at column 2, line 63) that is elastically deformable between a relaxed (expanded) configuration and a contracted configuration in which a length or radius of the substrate is smaller than in the relaxed configuration. The exterior surface of the substrate has recesses therein only in the contracted configuration. Note that the substrate contracts, rather than expands, from the relaxed configuration. WEIL also discloses a foil 32 that is fixed to the substrate 20 and has plural indentations that correspond to the recesses when the substrate is in the contracted configuration, not the relaxed configuration as claimed in claim 47. The indentations become less deep when the substrate is restored from contracted configuration to the relaxed (expanded) configuration. The foil 32 does not hinder the resilient restitution of substrate 20 to original expanded shape after compression (column 3, lines 30-36).

In the Advisory Action, the Examiner states that with the sheath in WEIL the contracted state can be considered the relaxed position, and when the sheath expands from the contracted state to the original position the sheath is clearly capable of expanding from its relaxed position. However, this is not what WEIL discloses. The sheath in WEIL is expanded in the relaxed state

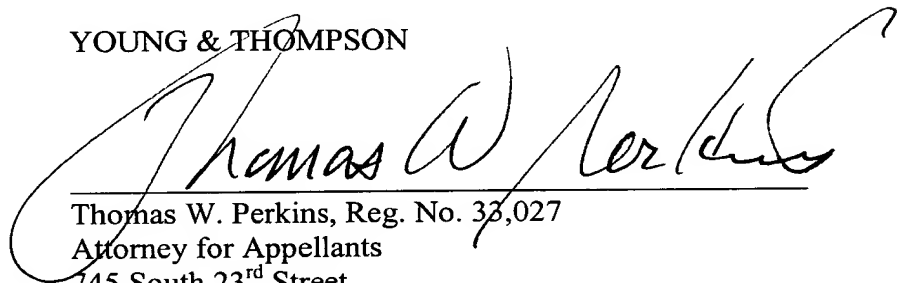
(not contracted) and resumes that expanded relaxed state after it has been compressed (column 2, lines 61-65).

The Examiner also states that the relaxed and expanded states are conditional parameters concerning the use of the sheath. However, this is not correct. The relaxed and expanded states define two physical shapes of the sheath. Further, the two states are not recitations of intended use. The sheath defined in claim 47 assumes the relaxed and expanded states regardless of its intended use.

In view of this, it is believed that the rejections of record cannot be sustained and that the same must be reversed and such is respectfully requested.

Respectfully submitted,

YOUNG & THOMPSON



Thomas W. Perkins, Reg. No. 33,027
Attorney for Appellants
745 South 23rd Street
Arlington, VA 22202
Telephone (703) 521-2297
Telefax (703) 685-0573
(703) 979-4709

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9. Appendix

The claims on appeal:

47. A thermal protection sheath, comprising:

an inner tubular substrate that has an exterior surface with a plurality of recesses therein, said substrate being longitudinally and radially elastically deformable between a relaxed configuration and an expanded configuration in which a length or a radius of said substrate is larger than in said relaxed configuration; and

a reflective foil fixed to said substrate and contacting said exterior surface only intermittently so as to form air pockets, said reflective foil being arranged on said substrate to have a plurality of indentations that correspond to said plurality of recesses when said substrate is in said relaxed configuration and that disappear when said substrate is elastically deformed from said relaxed configuration to said expanded configuration.

48. The sheath of claim 47, wherein said substrate comprises a corrugated tube and said recesses are annular depressions in said exterior surface, and wherein said air pockets are in said annular depressions between said foil and said corrugated tube.

49. The sheath of claim 47, wherein said substrate comprises a woven material and said recesses are between threads of said woven material.